COURSE OUTLINE

1. GENERAL

SCHOOL:	Engineering		
ACADEMIC UNIT:	Industrial Design and Production Engineering		
LEVEL OF STUDIES:	Undergraduate		
COURSE CODE:	**3005**	**SEMESTER**	**3**
COURSE TITLE:	Electronics		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS CREDITS**
Theory (Lectures)	3	3
Laboratory	1	2
	4	**5**

COURSE TYPE:	Special background
PREREQUISITES COURSES:	No
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No
COURSE WEBSITE (URL)	https://eclass.uniwa.gr/courses/IDPE321/

2. LEARNING OUTCOMES

Learning Outcomes

Upon successful completion:

- Students will have sufficient basic and advanced knowledge to be able to understand issues of electronics and electronic devices.
- They will possess advanced knowledge and skills so that they can use them in a way that demonstrates professionalism.
- Also, they will be able to solve complex and unpredictable problems related to the use of electronic components.

During the course, students learn how to gather and interpret information on cases of proper selection of electronic components and their use on circuits. Thus, after the successful completion of the course, students will be able to manage complex technical and professional activities.

General Competences

1. Search for, analysis and synthesis of data and information, with the use of the necessary technology
2. Adapting to new situations
3. Decision-making
4. Working independently
5. Team work
6. Working in an international environment

7. Production of new research ideas
8. Project planning and management
9. Production of free, creative and inductive thinking

3. SYLLABUS

Section A
1. Semiconductor Theory
2. pn contacts and diodes
3. Bipolar Transistors
4. JFET, MOSFET
5. Application of diodes and transistors
6. Operational Amplifiers
7. Active and passive filters

Section B
8. Digital Electronics
9. Boolean Algebra and logic gates
10. Integrated Circuits and combined circuits
11. Circuits and applications

Section C
12. Special topics of Optoelectronics
13. Special topics of micro- and nano- electronics

The course also includes an educational laboratory part where students can design, simulate and develop analog and digital circuits.

4. TEACHING and LEARNING METHODS – EVALUATION

DELIVERY	In-class face-to-face and distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY	• Use of ICTs in theoretical teaching and use of ICTs in lecturing • Use of ICTs for the communication with students via the e-class platform
TEACHING METHODS	

Method description / Activity	***Semester Workload***
Lectures	39
Laboratory work	30
Non-guided personal study	81

	Course Total (30h/ECTS)	**150**
STUDENT PERFORMANCE EVALUATION	**Language of Assessment** Greek **Description** Final exams with several type of questions such as multiple choice, short-answer questions and problem solving. **Student assessment methods** • Final Exams: 70% • Mid-term exams or written work, essay, report: 10% • Final written laboratory work/essay/reports: 20% The assessment criteria are announced to students at the beginning of the semester and are published on the course webpage in the e-Class platform.	

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1. J. Charitantis, Electronics, Arakinthos University publisher, 2013 (in Greek)
2. A. Malvino, Electronics, Tziolas publisher, 2006 (in Greek)
3. R. Jaeger, Microelectronics, Part A, Tziolas Publisher, 2003 (in Greek)

- Related academic journals:

- *Solid-State Electronics, Elsevier*
- *Microelectronic Engineering, Elsevier*
- *Electronics, MDPI*
- *IEEE Transactions on Industrial Electronics*